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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,383	03/26/2004	Jui-Jen Wu	N1085-00208	8606

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EXAMINER	
NATALINI, JEFF WILLIAM	

ART UNIT	PAPER NUMBER
2858	

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H1

Office Action Summary	Application No.	Applicant(s)	
	10/810,383	WU, JUI-JEN	
	Examiner	Art Unit	
	Jeff Natalini	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,5-11,13-16,18 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5-7* is/are allowed.

6)☒ Claim(s) *3,8-11,13-16,18 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3,10, 11, 13-16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellums et al. (6384664) in view of Kim et al. (6346738).

In regard to claims 3, 10, and 11, Hellums et al. discloses a method/apparatus to detect a fuse (abstract) comprising: a fuse bridge circuit in which a first arm has a fuse under detection (fig 8 arm (302,306), fuse (302)) for producing a first voltage (col 2 line 5-11) in response to a read signal (fig 8- transistor M1 (306) is activated by read signal);

a second arm (fig 8 (304,306)) of the fuse bridge circuit having a reference resistor (304) for producing a second voltage in the second arm (col 2 line 5-11) in response to the read signal pulse (fig 8- transistor M2 (306) is activated by read signal) said first and second arms each having detection elements (sensor circuit consists of the two legs, so broadly the whole leg is considered a detection element; abstract)

a sensing circuit for sensing the first and second voltage as status value data (col 5 line 42-54; the voltage of the two is sensed/measured/determined in order to produce a difference between them as one dataout is connected to both arms);

a latch circuit that stores/latches the data in the sensing circuit (col 5 line 42-54); and

a timing control circuit that turns off the fuse bridge after the latch circuit has been activated/independent of read signal decay (col 5 line 51-65; the NOR gate (fig 8-802) provides a timing delay (from the propagation delay that all gates have) and the logic is based on the dataout signals and does not relay on read signal decay), wherein the detection elements of the first arm and the second arm have different resistances (col 4 line 47-53; broadly the whole arm is considered the detection part of the system) proportioned to adjust/establish a burned-state detection threshold (the delta voltage is based on the proportion to each resistance and the difference will determine the magnitude for a blown fuse (threshold); col 4 line 47-66).

Hellums et al. lacks specifically that the reference resistor is a fuse.

Kim et al. teaches a fuse option circuit that has a first fuse (F1) in one arm and a second reference fuse (F2) in another arm (abstract).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hellums et al. to incorporate a reference fuse in the bridge circuit in order to keep a initial resistance value so the reliability of a fuse option can be improved (abstract).

In regard to claim 13, Hellums et al. discloses wherein the timing control circuit (fig 8, both dataout signals feed into NOR gate) is in a feedback circuit with the fuse bridge (output of NOR gate turns on fuse bridge with transistors M1, M2, would be able to turn transistors on/off based on the output of the NOR gate).

In regard to claim 14, Hellums et al. discloses wherein the status value data is kept in the circuit (status value is kept in the circuit through the NOR gate which uses the status values as inputs (fig 8 (802)) which senses the differential voltage (col 5 line 56-64).

In regard to claim 15, Hellums et al. discloses wherein the switching of the bridge is turned to a non-output (off) state after latching the data (col 2 line 24-28).

In regard to claims 16, Hellums et al. discloses delaying turn off of the differential voltage by a timing circuit (fig 8, NOR gate provides delay (propagation delay) to turn off transistors M1, M2) and switching the bridge circuit to a nonoutput state after latching the data (col 2 line 24-28).

In regard to claim 18, Hellums et al. discloses wherein the timing control circuit (fig 8, both dataout signals feed into NOR gate) is in a feedback circuit with the fuse bridge (output of NOR gate turns on fuse bridge with transistors M1, M2, would be able to turn transistors on/off based on the output of the NOR gate).

In regard to claim 19, Hellums et al. discloses wherein the status value data is kept in the circuit (status value is kept in the circuit through the NOR gate which uses the status values as inputs (fig 8 (802)) which senses the differential voltage (col 5 line 56-64).

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hellums et al. (6384664) and Kim et al. (6346738) as applied to claim 3 above, and further in view of Lim et al. (6483373).

Hellums and Kim et al. lacks wherein the first arm and the second arm have respective transistors of different multiples of a gate width to gate length ratio to adjust a burned state detection threshold for the fuse under detection.

Lim et al. discloses wherein the first arm (fig 8 (Fuse-F81, trans-MN81) and the second arm (F83, MN83) have respective transistors of different multiples of a gate width to gate length ratio to adjust a burned state detection threshold for the fuse under detection (col 8 line 4-25; a larger ratio means the current will be higher across the fuse when burned).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hellums and Kim et al. to have transistors having a different W/L ratio in the first arm compared to the second arm to adjust the burn state detection threshold as taught by Lim et al. in order to be able to tell the operation mode according to what fuse has blown (col 8 line 26-31).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hellums et al. (6384664) and Kim et al. (6346738) as applied to claim 3 above, and further in view of Lim et al. 2 (6201432).

Hellums and Kim et al. lack the combination of having the fuse under detection and the reference fuse have the same resistance prior to programming or burning and where the detection elements of each arm have different resistances.

Lim et al. 2 discloses where the fuse under detection and the reference fuse have the same resistance prior to programming/burning (abstract; col 5 line 13-35; in

order to get a desired differential signal for proper output the resistance of the fuses would be equal) and where the detection elements of each arm have different resistances (fig 3 (32a, 32b)).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Hellums and Kim et al. to incorporate having the fuse and the reference fuse have equal resistances prior to programming and having the detection elements have different resistances as taught by Lim et al. 2 in order so that the voltage difference will change if a fuse is cut/blown (col 5 13-22).

Response to Arguments

5. Applicant's arguments with respect to claims 3 and 11 have been considered; with the addition of the new amendment it is respectfully pointed out that Hellums broadly teaches wherein the detection elements of the first arm and the second arm have different resistances (col 4 line 47-53; broadly the whole arm is considered the detection part of the system) proportioned to adjust/establish a burned-state detection threshold (the delta voltage is based on the proportion to each resistance and the difference will determine the magnitude for a blown fuse (threshold); col 4 line 47-66).

The argument with respect to "the fuse under detection and the reference fuse have the same resistance prior to programming or burning the fuse under detection" not being disclosed by Kim et al. in the combination with the detective portion not having the same resistance is persuasive and a new rejection is made for claim 9. A new rejection is also made to amended claim 8.

Allowable Subject Matter

6. Claims 5-7 are allowed. As applicant has amended to overcome the objections of the previous office action.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Denham (5731733) discloses a circuit for sensing the state of a fuse, has a reference and a test fuse that have equal resistances. Hejdeman et al. (6903986) discloses an apparatus to improve the reliability of the reading of integrated circuit fuses.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Natalini whose telephone number is 571-272-2266. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeff Natalini

ANJAN DEB
PRIMARY EXAMINER